

## KINGS CROSS CENTRAL DEVELOPMENT, LONDON CHP ENERGY CENTRE AND DISTRICT HEATING

Contract Value: **£11 million**

Client: **Metropolitan Kings Cross Ltd**

- > Reduced energy demand
- > Flexible solution that met the clients and developments requirements
- > Efficient energy supply
- > Site-wide district heating using CHP system providing a low-carbon supply
- > On-site energy centre
- > CHP is energy efficient and reduces the energy needed for buildings
- > CHP generates electricity at the same time as heat

### > Introduction

Vital Energi has been appointed by Metropolitan Kings Cross Ltd to provide a sustainable energy supply for the new 67 acre, £2 billion Kings Cross Development in central London which will create eight million square foot of offices, shops, homes and a university. King's Cross Central is being developed by the King's Cross Central Limited Partnership which is made up of Argent Kings Cross Ltd, London & Continental Railways Ltd and DHL Supply Chain. Metropolitan Kings Cross Ltd is the energy services company (ESCo).

The new development will consist of 25 new office buildings, 20 new streets, 10 new major public buildings, the restoration and refurbishment of 20 historic buildings and structures and up to 2,000 homes and serviced apartments. It is Europe's biggest city centre regeneration scheme and the largest piece of Central London to be developed, under single ownership, in the past 150 years. It even has its own brand new postcode – N1C. Initially awarded the contract to design, supply and install the district heating pipes for the development, Vital Energi subsequently won the contracts to design, supply and install a temporary boiler house, as the building of the site progressed, and a pioneering Combined Heat and Power (CHP) Energy Centre to provide heat and hot water for the whole development.



*“Vital Energi provides expertise and also integrates into the greater team. They are very professional and work well with our project manager and also the developer’s on site team. Communications are very effective and a strong team ethic has developed.”*

**John Marsh, Operations Director, Metropolitan**

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In July, the Blackburn and London-based sustainable energy specialist announced it has also been awarded the contract to operate and maintain the new Kings Cross Energy Centre for up to 30 years. Vital Energi won this prestigious and high profile contract because of its transparency, flexibility and adaptability in designing and installing energy provision. John Marsh, Metropolitan Kings Cross, commented: "Vital Energi provides expertise and also integrates into the greater team. They are very professional and work well with our project manager and also the developer's on site team. Communications are very effective and a strong team ethic has developed."

### > The Brief

The challenge for Kings Cross Central was to provide an energy efficient and sustainable site without compromising the quality of living, or the availability of supply, and to develop a future proofed living and working environment. Its target is to cut carbon emissions by at least 50 per cent through energy-efficient building design, the application of the latest technologies and connection to a site-wide Combined Heat and Power (CHP) driven hot water distribution network. The development is also using other renewable technologies including roof-mounted wind turbines, photovoltaics, ground source heat pumps and solar thermal systems for generating hot water.

### > The Solution

Vital Energi initially won the contract to install 2,000 metres of pre-insulated pipe to connect the Combined Heat and Power (CHP) fuelled energy centre to all the new homes and buildings on the development. The community heat network significantly reduces heat loss due to the superior insulation of the pipe and Vital Energi's exclusive Band Muff™ fusion welded joint system which increases the pipes life span from 30 to 50 years therefore lowering maintenance costs. The infrastructure also includes a sophisticated surveillance system which monitors the pipe network 24 hours a day.

MKC was so impressed with Vital Energi's flexibility, transparency, clarity of approach and quality of technical advice that it subsequently awarded it the contract to design, supply and install the main T1 energy centre. Planning permission for the main Kings Cross Central development was received in 2006. The project is expected to take 15 to 20 years to complete. As the development has progressed, the economic conditions have worsened. In response, Vital Energi made a recommendation to the client not to go ahead with constructing the main energy centre during the initial stages of the 67 acre development as it would be energy inefficient and require early capital investment as well significantly increase the operation and maintenance costs of the scheme. In collaboration with MKC, Vital Energi designed and installed a temporary containerised energy solution which included equipment which could be transferred to the main energy centre or left intact and transported for use on another site.

Argent Group has since transferred this temporary boiler house 'pod' for use during the construction of its new HQ offices in Peter Street, Manchester. The main T1 energy centre at Kings Cross will comprise three 2MW GE Jenbacher CHP engines and three 10MW gas-fired boilers to provide heating, hot water and locally generated electricity to the development. It is being constructed in phases to facilitate the expansion of the development. The first phase, which saw the commissioning of one of the three CHP engines in the energy centre, was completed in July 2012. Phases 2 and 3 of the project, which will see the second and third CHP engines installed and commissioned, are due for completion by the end of 2014. Vital Energi's operations and maintenance (O&M) department has been awarded the contract to run the Kings Cross Energy Centre for 10 years initially, with an expectation to extend to 30 years. The initial 10 year contract, which starts in September 2012, is worth £2 million.

### > The Conclusion

A Combined Heat and Power system for site-wide energy provision was chosen by the Kings Cross Central Partnership after its significant cost and CO2 savings were demonstrated during a tour of another Vital Energi CHP installation at London's landmark National History Museum. Combining practical solutions with superior products and technologies means that Vital Energi is providing significant savings and a reduction in CO2 emissions to ensure that the King's Cross development meets its aim of cutting carbon emissions by 50 per cent.